Digital Video Recorder

User’s Manual

HDR-5004/5008/5008R/5016

Thank you for using our product.

1. This is user's manual for H.264 HD DVR (Digital Video Recorder).

2. This manual contains product specification and introduction, installation guide, operating guide and other necessary matters for easy understanding. Users should read this user's manual carefully for proper use.

3. Contents in this manual may be changed according to the specification change and feature improvement without any notification.

4. This user's manual shall never be copied without prior agreement and violating this may be a reason for legal punishment on piracy.

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CH1. Product Introduction

1-1. Product Contents(HDR-5004/5008)

After removing packing materials of this product, check whether all following contents are included.

Main Body (DVR):
This converts the analog video and audio signal to the digital signal and saves on HDD.

Adapter:
This 12V adapter supplies power to the product.

Power Cable:
This connect the adapter and the power source.

Program CD:
This contains the User's manual and Client Program for DVR.

Remote Controller:
This is an IR remote controller for convenience.

Battery:
These are 2(two) battery for the remote controller.

1-1. Product Contents(HDR-5008R/5016)

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1-2. Specifications

Model			HDR-5004	HDR-5008	HDR-5008R	HDR-5016
			Compact type		19" rack type	
Video	Camera input		4 BNC	8 BNC	8 BNC	16 BNC
	Individual HD/Analog selectable		All Hybrid(Patent Pending)			
	Available source		720p25,30,50,60/1080p25,30,50,60/1080i50,60/Composite/960H/Mixed			
	Output		1 HDMI+1 VGA (simultaneously) / 1 Programmable SPOT with OSD			
Audio	Audio input		4 RCA		8 RCA	16 RCA
	Output		1 RCA			
Sensor In			4 (NC, NO selectable)		8(NC, NO selectable)	16(NC, NO selectable)
Alarm out			1 relay		6 TTL, 2 relay	14 TTL, 2 relay
Operating System			Embedded Linux OS			
Display	Speed		Real Time			
	Resolution (Pixel)		1280X1024, 1280X720, 1920X1080			
	Split screen		1,4	1,4,8	1,4,8	1,4,6,8,9,13,16
Recording	CODEC		H.264 / JPEG for 3G, Dual CODEC			
	Resolution (Pixel)		720p, 1080p,1080i, 960H, 720H, Mixed			
	Picture quality		4 steps (Super, High, Medium, Low)			
	Speed	NTSC area	120fps@1080p	240fps@1080p	240fps@1080p	480fps@1080p
		PAL area	100fps@1080p	200fps@1080p	200fps@1080p	400fps@1080p
Playback	Display		1,4	1,4,8	1,4,8	1,4,6,8,9,13,16
	Search mode		Calendar, Event ,POS , Panorama, Thumbnail			
	Speed	NTSC area	60fps@1080p	120fps@1080p	120fps@1080p	120fps@1080p
		PAL area	100fps@1080p	200fps@1080p	200fps@1080p	200fps@1080p
	Fast/Slow speed		Normal, REW & FF [recorded speed x2, x4, x8, x16,x32,x64,x1/2,x1/4], Frame to frame, Pause			
Network	Network Interface		Gigabit Ethernet			
	Speed		60fps@1080p	60fps@1080p		120fps@1080p
	Protocol		TCP/IP, HTTP, DHCP			
	Application		Windows 2000 / XP / Vista / 7 / 8 (PC Client system& IE)/MAC			
	Web Browser		Internet Explorer			
	Smart phone App		Android, iPhone for live and search			
Backup	Interface		USB 2.0 X 2		USB 2.0 X 3	
	Backup device		External HDD, CD&DVD-RW, Network, Thumb Drive			
The number of HDD			2 SATA(No capacity limit ; 4TB of more)		4 SATA + 1 eSATA(upto 12 bays, No capacity limit ; 4TB or more)	
Function	•Full GUI with alpha blending					
	•Individual setting of resolution, frame rates and picture quality					
	•Instant Replay					
	•Digital Zoom					
	•Mouse Control					
	•Weekly scheduler with holiday by 10 minutes setting					
	•Covert, Disable and Private function of cameras					
	•Motion Detection with 352 area setting					
	•Relay alarm output					
	•PTZ control by RS-485					
	•Daylight Saving Time and Network Time Setting					
	•Multi User Authority up to 8 Users					
	Deinterlacer upon live and playback					
	•12 languages with full graphic					
	•Individual Network port setting					
	•Auto Deletion					
	•Import and Export the configuration					
	Mirroring					
	POS Interface					
	•Dual CODEC engine for independent video transmission					
	•Interactive setup via network					
Others	Power Consumption		50W		150W	
	Operating Temperature		5 ~40℃(41~104F)			
	Relative Humidity		Maximum 80% non-condensing			
	Dimension		340(W)×250(D)×60(H) mm		430(W)×420(D)×88(H)	

1-3. Product Characteristics

1) Full HD real time and All Hybrid
This DVR can record HD and Full HD video with extreme quality. Also it displays real HD(1920X1080) resolution, and therefore it provides the most clear image quality and the best security level. Furthermore, HDR series can mix any input such as analog, 960H and HD-SDI. All video input is detected automatically. (Patent Pending)

2) High reliability
With Embedded hardware and software design, this maintains higher product reliability.

3) Simple usage
This allows users to use it conveniently by placing control buttons similar to existing ones on VCR, and users can easily learn the usage.

4) Pentaplex System
Pentaplex System allows live, recording, backup, networking and playback simultaneously.

5) Selectable recording setup
For recording methods, users can select the frame rate, resolution and video quality individually in order to be appropriate for user's environment.

6) Remote monitoring
With using exclusive line or Internet network, you can search or monitor recorded images remotely by installing exclusive client program on Windows PC or Mac.

7) Backup
You can backup with a versitile external USB devices.

8) Audio recording
You can record 4 sound inputs simultaneously. Moreover, you can listen to the sound in search and live monitoring and play mode.

9) Various recording methods
This provides convenient use with manual recording, recording by dates and days, hourly schedule recording, sensor and motion detection event recording and others to enable unmanned monitoring.

10) Various total monitoring features
You can cover any security scenario through various sensor inputs and contact output control.

11) Display information in easy-to-understand information method
This enhanced convenience of user by displaying information (date, time, recording method, recording frame number, HDD capacity and others) in monitoring, recording and playing mode in easy-to-understand way.

12) P/T/Z control
By built in RS485, various P/T/Z cameras can be used.

13) Dual CODEC for video transmission
DVR can send 120 fps (based on CIF) regardless of the local recording and viewing setup regardless with recording setup.

14) Web browser support
You can monitor and playback the video and control the PTZ camera by internet explorer.

15) Built in S.M.A.R.T.
You can automatically check the health of the hard disk drives.

16) Language pack
Basically DVR has multiple language set, furthermore you can choose the language set if you want.

17) Mirroring by internal HDD
If you install two HDDs, you can use the second HDD for backup for maximum fault tolerance.

18) Spot monitoring
Spot out can be enable to monitor sequentially in other place.

19) Touch LED Switch
You can operate with touch LED switch in front panel.

20) Text inserter(POS Interface)
You can operate with the POS and ATM.

1-4. Name of Each Part

[Front Panel]

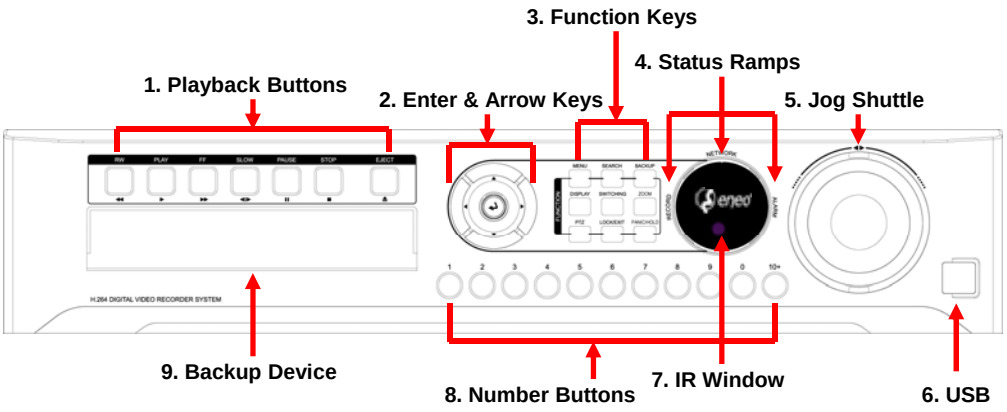
<HDR-5004, HDR-5008>

1. IR Window : the window for remote controller

2. USB ports : These USB ports are for mouse and USB devices. You should connect correctly the USB devices and mouse as picture directed.
3. Status lamps
   POWER : Blue color back light. Power indicator.
   RECORD : Red. Indicate the recording.
   NETWORK : Green. Lit on connecting the network

[Front Panel]

<HDR5008R, HDR-5016>



1. Playback buttons : It will be used on playback. If you press these buttons in live mode, it will be automatically changed to the Instant Play mode. 'Stop' button changes from the play mode to the live mode.

2. ARROW, ENTER : This button is used to change settings for the product in MENU Mode or used in Search Mode.

3. Function keys

1) MENU : It will move to the setup screen from the live mode.
2) SEARCH : It will change to the playback mode from the live mode.
3) BACKUP : It will move to the backup screen from the live or play mode.
4) DISPLAY : It will change the screen splitting sequentially from 1 to 20. It can be adapted both live and play mode.
5) SWITCHING : It will change to switching mode except 20 splitting.
6) ZOOM : It will go to the digital zoom directly.
7) PTZ : It will change to the pan, tilt and zoom control mode from the live mode.
8) LOCK/EXIT : If you want move to the upper menu or exit without saving, press this button. On playback, it will disappear the search list for the better viewing. On live viewing, it performs the system lock.
9) PANIC : This button is used in emergency status. If you push this button, the DVR starts to record with maximum speed regardless of setting value.

4. Status lamps

POWER : Blue color back light. Power indicator.
RECORD : Red. Indicate the recording.
NETWORK : Green. Lit on connecting the network
ALARM : Red. It will be lit on when the events happen

5. Jog Shuttle : You can use this wheel for fast retrieving and playback back and pro. If you hold the shuttle, push the 10+ button while grabbing the shuttle.

6. USB ports : These USB ports are for mouse and USB devices.

7. IR Window : the window for remote controller

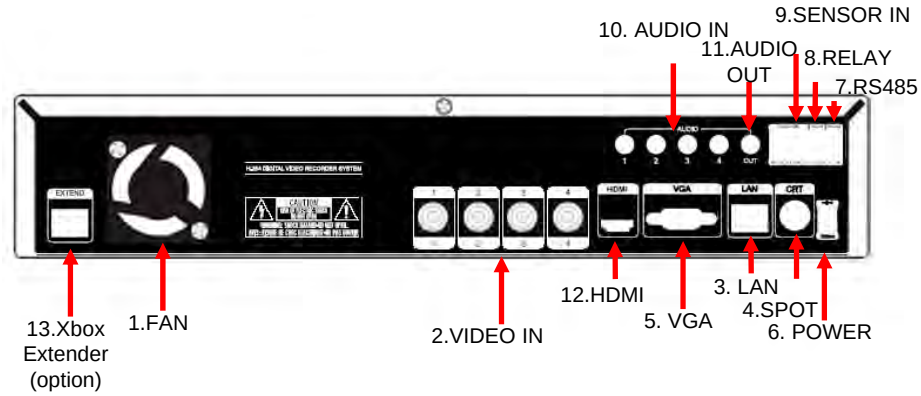
8. Number buttons : If you press this button, it will be changed to full screen in live viewing or playback If you want to go to 20ch, push the 10+ button twice. Also 10+ button is used for 'Hold' while Jog Shuttle action.

(※ In menu and password setting, it is automatically converted to number buttons)

9. Backup device : You can use the versatile backup devices such as CD-RW and DVD-RW.

[Rear Panel]

<HDR-5004>

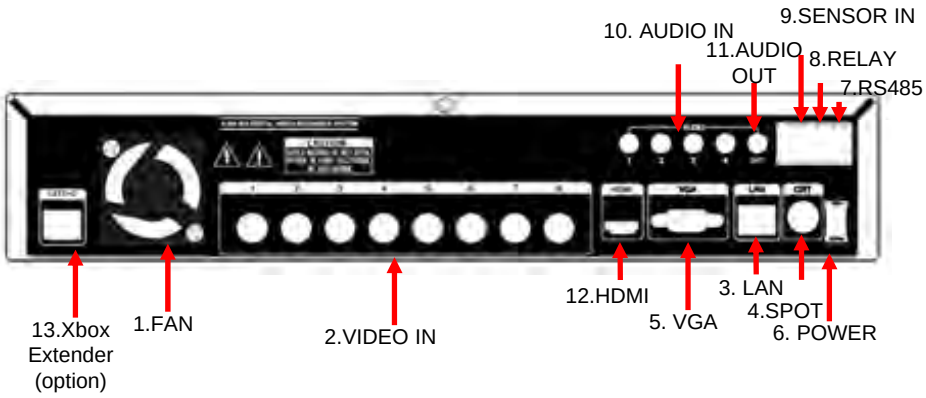


1. Cooling Fan
2. Video In: This receives images from SDI cameras(04) or any camera(04+).
3. LAN Port: This is the Gigabit Ethernet LAN cable connection terminal.
4. SPOT Out : To CRT 4:3 monitor for spot video.
5. VGA port: video output for analog RGB display
6. DC Power : DC12V 4.16A or up
7. RS485 port : For control the pan and tile cameras. Make sure that the polarity.
8. Relay out : This terminal blocks connect external electric devices to the product (Warning Lamp and others).
9. Sensor In : This terminals can be connected to external sensors.
10. Audio In: RCA audio in terminals. You can record four channels at the same time.
11. Audio Out: RCA audio out terminal.
12. HDMI : HDMI output for HD monitor
13. VGA Extender (option) : Connect EXTEND FTP cable to Receiver

※ For more details, refer to [CH 2. Installation Method and Cautions].

[Rear Panel]

<HDR-5008>



1. Cooling Fan
2. Video In: This receives images from analog/960H/SDI cameras.
3. LAN Port: This is the Gigabit Ethernet LAN cable connection terminal.
4. SPOT Out : To CRT 4:3 monitor for spot video.
5. VGA port: video output for analog RGB display
6. DC Power : DC12V 4.16A or up
7. RS485 port : For control the pan and tile cameras. Make sure that the polarity.
8. Relay out : This terminal blocks connect external electric devices to the product (Warning Lamp and others).
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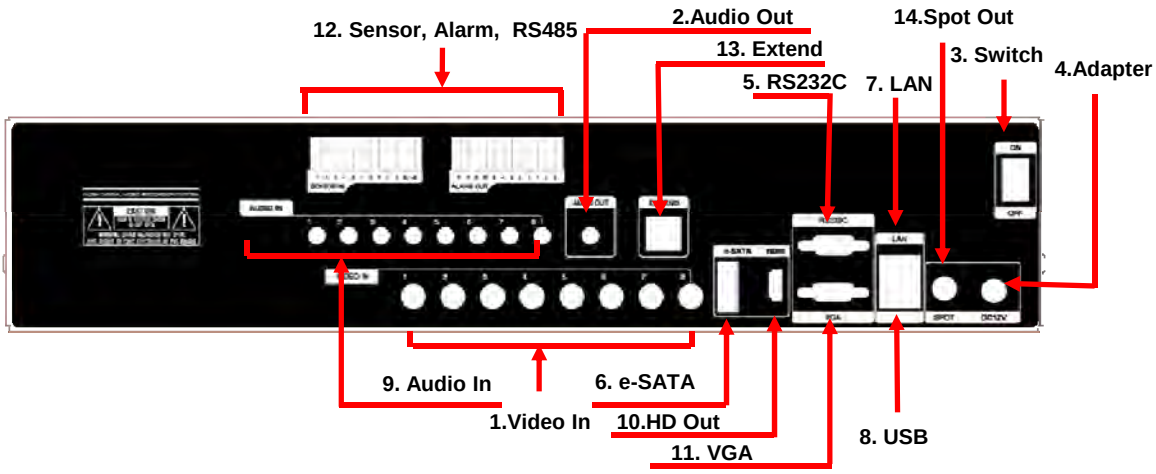
[Rear Panel]

<HDR-5008R>

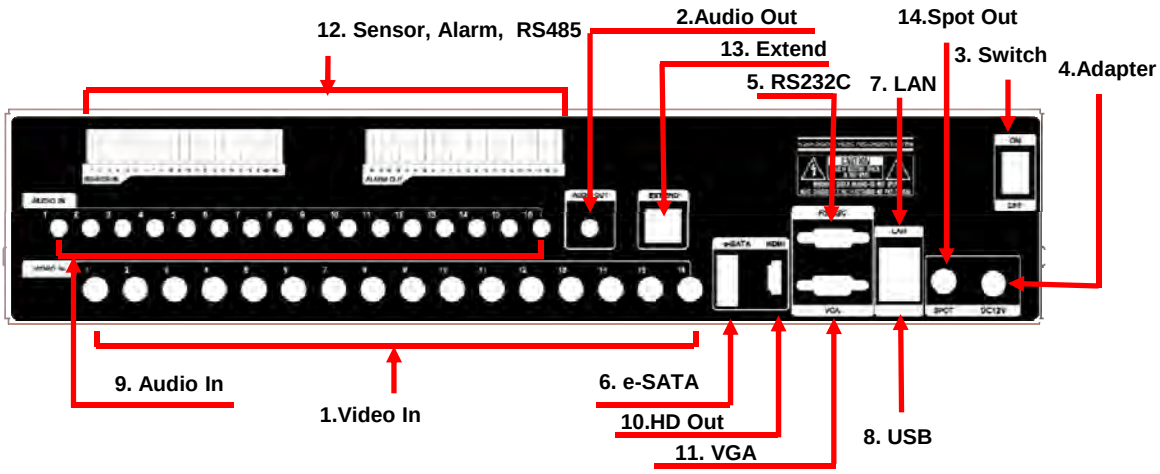


1. Video In : This receives images from cameras and sends them to monitors.
Loop Out : This sends the images from the cameras to the other devices.
2. Audio Out : RCA audio out terminal.
3. Power Switch
4. Adapter : Connect DC12V only.
5. RS232C : This is Serial communication(RS232C) cable connection terminal.
6. e-SATA
7. LAN Port: This is LAN cable connection terminal.
8. USB ports : This USB port is for mouse and USB devices.
9. Audio In: RCA audio in terminals. You can record 16 channels at the same time.
10. HD Out : Real HD(1920X1080) output for high resolution monitor
11. VGA port: video output for VGA display
12. Sensor, Alarm, RS485 : For external sensor and external electric devices to these terminal block. There are 16 inputs, 2 relay output and 14 TTL output. For control the pan and tile cameras. Make sure that the polarity.
13. VGA Extend (option) : Connect EXTEND FTP cable to Receiver
14. Spot Out : For spot CRT monitor, composite signal comes out.

※ For more details, refer to [CH 2. Installation Method and Cautions].

[Rear Panel]

<HDR-5016>



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※ For more details, refer to [CH 2. Installation Method and Cautions].

CH2. Installation Method and Cautions

2-1. Cautions

WARNING

Risk of electric shock.
Do not open the cover of the product.
Servicing of this product by unauthorized personnel is prohibited and will result in a void of warranty.

In order to ensure the most stable conditions for power, the use of a UPS (Uninterrupted Power Supply) is recommended.

- Avoid installing the product where there are direct rays or it is hot by locating near from heat generator. (May cause fire)

- Do not put vase, flowerpot, cup, cosmetics, drug, and anything the contain water on product. (May cause fire or electric shock, and it may injure people by falling)

- Do not insert or drop any metal object (coin, hair pin) or flammable object (match, paper) into air hole. (May cause fire or electric shock)

- Do not put any heavy object on it. (May injure people by being fell or destroyed.)

- Put power plug surely not to be moved. (If not, this may cause fire.)

- Unplug power plug and antenna when there are thunders and lightening. (May cause fire.)

- For cleaning the product, wipe surface with dry towel. Using chemical agent or cleaner may change the color and unpeel paint. Do not put several plugs at same time. (May cause electric shock.) If there is smoke or strange smell, stop operation. In this case, turn the power off and unplug it, and then contact our service center. (If you keep using it, this may cause fire or electric shock.)

- Do not unplug by pulling cord. (If cord is damaged, it may cause fire or electric shock.)

- Do not plug or unplug with wet hands. (May cause electric shock.)

- Keep the power cord untwisted. (May cause fire or electric shock.)

- Use proper adapter. (Using too much electric power may cause fire or electric shock.)

- Do not install it at where exposed to rain and wind and water drop. (May cause fire, electric shock and transformation.)

- Keep away from fire. (May cause fire.)

-Do not disassemble or remodel on your own. (May cause malfunction or electric shock.)

- Do not put next to flammable materials like flammable spray. (May cause fire.)

- Do not install it at a place with too much dirt. (May cause fire.)

- Do not install it on unstable places like shaking table and inclined place or shaking place. (May injure users by falling down or being upside down.)

- Do not put an heavy object on power cord or avoid it from being pressed by the device. (May cause fire or electric shock.)

- In case of using extension cord, do not use several devices at same time. (May cause fire with abnormal heating of extension.)

- When there are dirt on power plug pin or power outlet, clean it nicely. (May cause fire.)

-Do not damage on power cord or plug, and bend or twist or pull too much, and put it between other objects or heat. If power outlet insertion part is not tight, do not use it. (May cause fire or electric shock.)

-Do not drop or give a shock to the product. (May injure people or cause malfunction.)

- Do not touch power adaptor or signal controller. (May cause electric shock.)

- Do not put any object too close to block cooling fan. (May cause fire.)

- In case of exchanging batteries with improper type, there might be danger of explosion.

- For used batteries, throw away separately from other garbage.

- When you take out batteries, avoid children from eating them by mistake. Keep them away from children. (If a child ate them, contact a doctor right away.)

Note :
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

This device complies with the part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operations.

FCC Warning :
This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

CE Warning : This is a Class A product. In a domestic environment this may cause radio interference in which case the user may be required to take adequate measures.

This product has obtained EMI registration.

2-2 Product Installation

This product may be composed of camera and monitor in default, and additionally the sensor, microphone, speaker and PC for network can be connected if necessary.

2-2-1. Power Connection

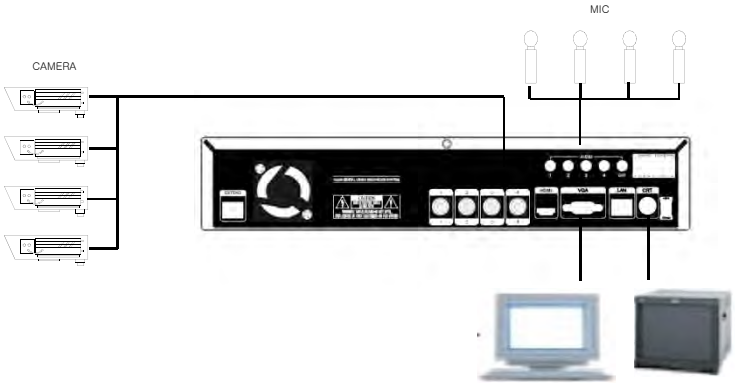
1) Connect adapter cable to power connection terminal at rear side.
2) Input AC power to the adapter. (free voltage from 100V to 240V, 50/60Hz)

※ You must operate it at the rated voltage instructed on the user's manual. In case power higher than the rated voltage is supplied, it may cause damages on product.

2-2-2. Connecting External Device

※ Connect it when power of the product is off.
※ Read through user's manual for the device you are connecting carefully.

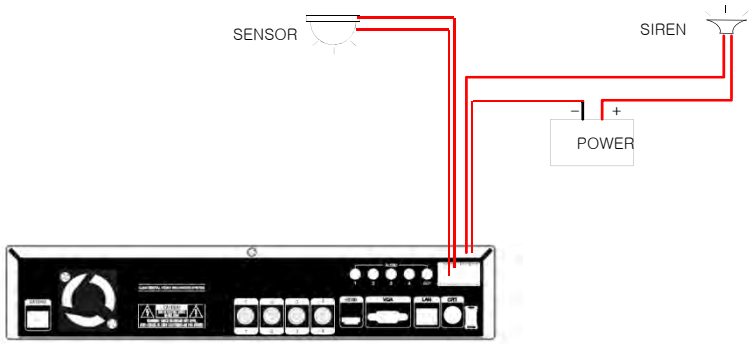
1) How to Connect External Video/Audio Device



Connect cameras to VIDEO IN by channels.
Connect microphone (AMP) to AUDIO IN by channels.
Connect VIDEO OUT to VIDEO IN of monitor.
Connect HD output to HD Monitor.
Connect AUDIO OUT to AUDIO IN of monitor (or speaker).
Connect Spot output to Composite Monitor.

2) How to connect external sensor

Sensor terminal is composed of 1 input channel and 1 output channel. Sensor out terminal is relay output with 1A, 24V or 0.5A,125V.



Sensor In : Connect the sensors. The sensor are composed of both signal and ground terminals, with a voltage difference of 5V. In the case that the sensor used for input is of the N/O (Normal Open) type, when the voltage difference between the signal and ground falls to 0V (short), the DVR can use this as a trigger to start alarm/sensor based recording.

Sensor Out : Connecting external electrical devices

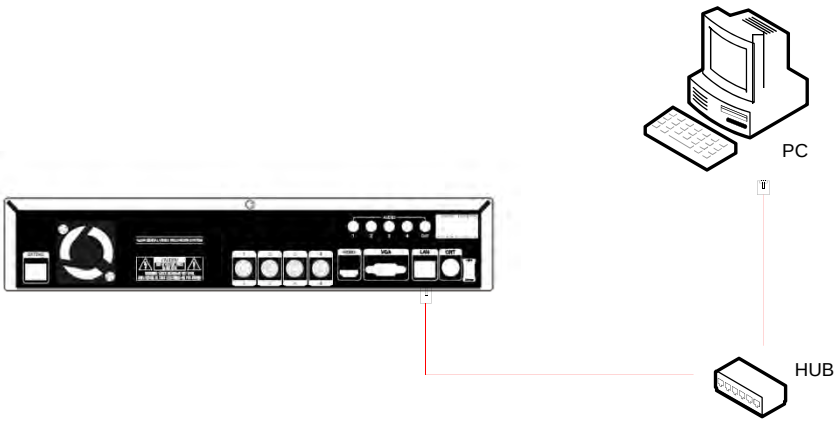
The relay output terminal does not provide power, and functions only on an ON/OFF basis via a relay. Normally, the signal and ground should be on an OPEN basis, and the DVR will complete the relay connection.

3) Connecting with PC using LAN cable

If you want to connect DVR to PC directly, use LAN cable, and if you want to use HUB, connect cable via hub.

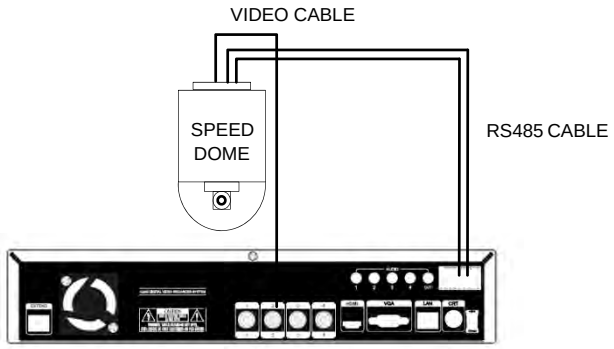
*Hub : This is a device connecting one office to devices located near with using cable when you organize LAN

*Cable : This is standard UTP cable used for communication among devices through Hub and others when you organize LAN



4) Connection Using PTZ camera

In case of using pan and tilt cameras, connect PAN/TILT DRIVE to product as shown at following figure.

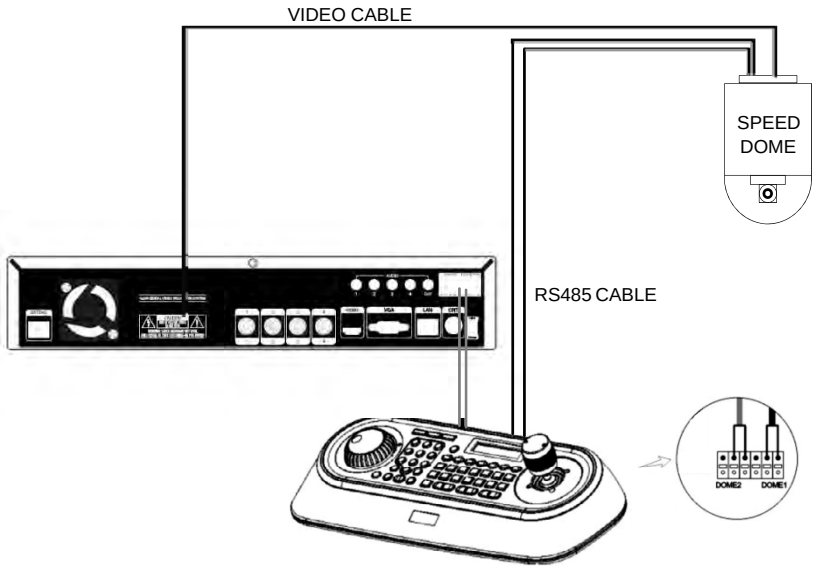


5) Installing Hard disk drive

In case of installing the hard disk drive, open the upper case and install the hard disk drive on the hard bracket. Remember that the main power should be off to install the hard disk drive. If you have any trouble, please contact the technical support.

6) Installing KBD-2

In case of installing the System Keyboard with Joystick and Jog Shuttle KBD-2, connect KBD-2 to RS485 of DVR. The cable should be connect DOME2 of KBD-2. Be careful the polarity



CH3. How to Use

3-1. General Usage Information

The ULTIMA series DVR can be operated with a mouse or remote controller under the four main modes listed below:

Live Mode – This is the "main or default" mode. From this mode you can view in real time all currently operating cameras, information regarding camera status, and have access to Pan/Tilt camera controls. In addition, system status information will be shown during live mode, and other modes can be entered from Live mode.

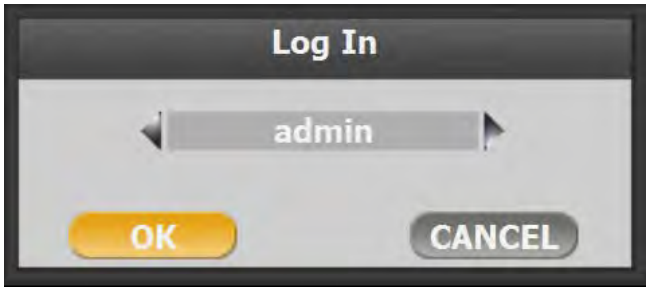
Setup Mode – The user will be able to customize settings for Live viewing, Recording, Backup, and Camera related devices under the Setup Mode.

Search Mode – In Search Mode, the user will be able to review all recorded footage in the case that an event must be reviewed using a calendar or event based search.

Backup Mode – In Backup Mode, the user will be able to archive the desired data to the preferred supported media of their choice (ex. CD, DVD, USB Backup, Remote Client Software, etc.)

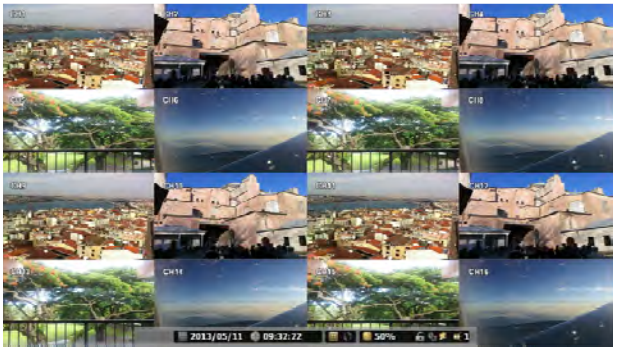
Password Protection – The DVR system will utilize a user ID and password system to prevent unauthorized usage of this product. Control of the system will only be possible after entering a proper ID and password as illustrated below. (Factory Default settings are blank for these fields).

IDs and passwords should be managed by a system administrator, as different users may be given different levels of access to the DVR.



3-2. LIVE Mode

In this section you will know how to split the video mode into 1, 4, 6, 8, 9, 12, 16, as well as auto sequencing, PTZ Control, Mouse control, Setup configurations, Backup



3-2-1. LIVE Mode Control

1) Live View Status

You may use the Live Menu Bar located at the bottom for quick shortcuts and view status of certain items.

	Recording indicator
	Event recording indicator
	Motion detection indicator
	Sensor activation indicator
	POS indicator

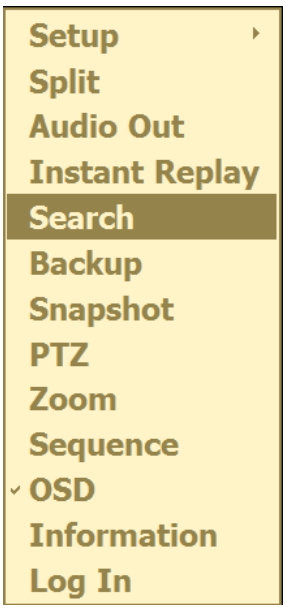
2) Live Menu Bar

You may use the Live Menu Bar located at the bottom for quick shortcuts and view status of certain items.

	Date
	Time
	Screen Split mode change
	Sequence activation
	Hard drive usage
	Lock/ Unlock indicator
	Scheduler activation indicator
	Network connection indicator
	Audio out channel indicator

3) Live Popup Menu

By Right-Clicking anywhere on Live Screen, you may view the Live Popup Menu. By using the Live Popup Menu, you can quickly jump to the necessary configuration and settings.



3-2-2. LIVE Mode Feature

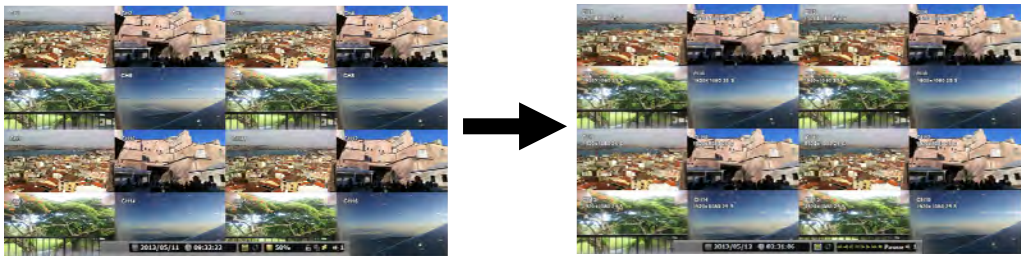
1) Setup : refer to 3-4

2) Split
Change video split mode for Live View.

3) Audio Out
You can choose the audio out from this menu.

4) Instant Replay
This is very convenient function to catch the abrupt accident. During live viewing, you can go directly to the playback screen.

If you choose the 'Instant Replay' , the DVR goes to the 'PLAY' with the present time screen. And you can use the functions related playback.

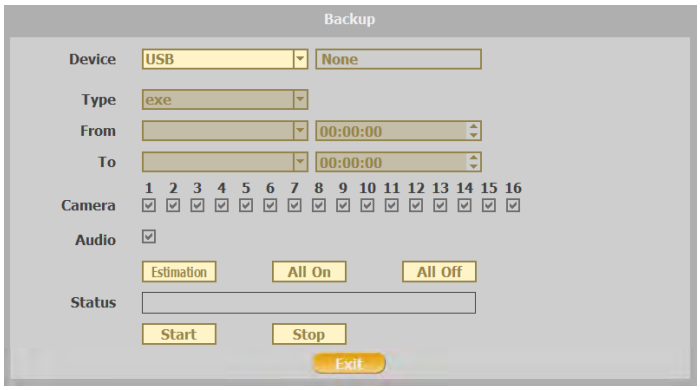


5) Search : refer to 3-3

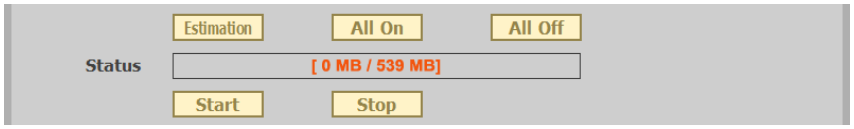
6) Backup

There are two ways to enter the backup. The first one is that right click on the live screen, and the second one is that enter directly from 'Search' upon playback. If you choose the 'backup' from the live menu, below backup screen appears.

• You can set the backup device, time and channel from the backup screen.



• After that, if you push the 'Estimation' button, it will show the estimated backup file size.



• Then click the 'Start' button.

WARNING

Do NOT remove the backup device till end sign. The device and system may be damaged.

7) Snapshot

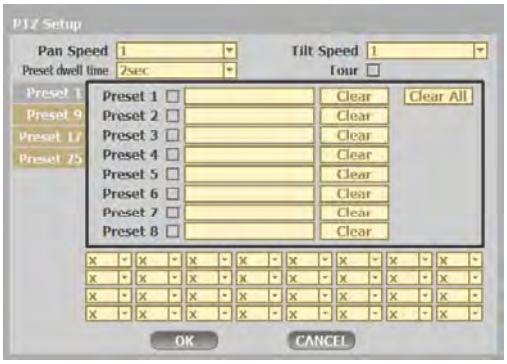
You can save the live snapshot by this menu. All channel will be saved individually to the USB memory by JPG format . You should put in USB memory before saving.

8) PTZ (Pan, Tilt and Zoom)

It is possible to control the pan and tilt camera by itself. Press the 'PTZ' button to enter the PTZ mode. For Menu setting, you can set it by pressing button as displayed at bottom of window.

• You can set the direction of camera by using the arrow buttons.

• Setup : If you press Setup using mouse (or Menu button on the remote controller) in PTZ Menu, PTZ setup window will appear. You can set the pan and tilt speed, 32 preset name and tour sequence as well as dwelling time,



• Zoom In/Out : You can zoom in/out with mouse or play /backward buttons on the remote controller.
• Focus In/Out : You can adjust the focus with mouse or slow buttons on the remote controller.
• Iris In/Out : You can adjust the iris with mouse or ff/rew buttons on the remote controller.

•Preset : You can enter the preset number using the keypad appearing the preset button or 'Enter' button on the remote controller.

9) Zoom

Digital zoom of live screen for selected channel. It can be 8x zoom and also control the position by mouse dragging.

10) Sequence
Sequence Mode On /Off: Switches screens as set on Dwell time under Screen Setup

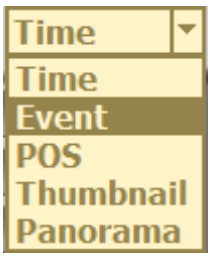
11) OSD
This feature shows current settings of product through GUI (Graphic User Interface) and INFO button at front side is used for this feature. When you turn on power, this will show current date and time, System Lock Setting, HDD usage, Video Loss Check, Sensor ON/OFF, Motion Detection Check, Recording Stat us and Schedule Feature Usage. As you press INFO button once more, GUI disappear->OSD disappear->GUI appear->OSD appear will happen sequentially.

※ GUI (Graphic User Interface): displaying current status on monitor as images
※ OSD (On Screen Display): displaying current status on monitor as character

12) Lock/Log In
Logs off current user and locks DVR from any further configuration and screen setup until next Administrator logs in.

3-3. Search Mode

Search mode consists of two different modes of searching. The video data can be selected by 5 modes.



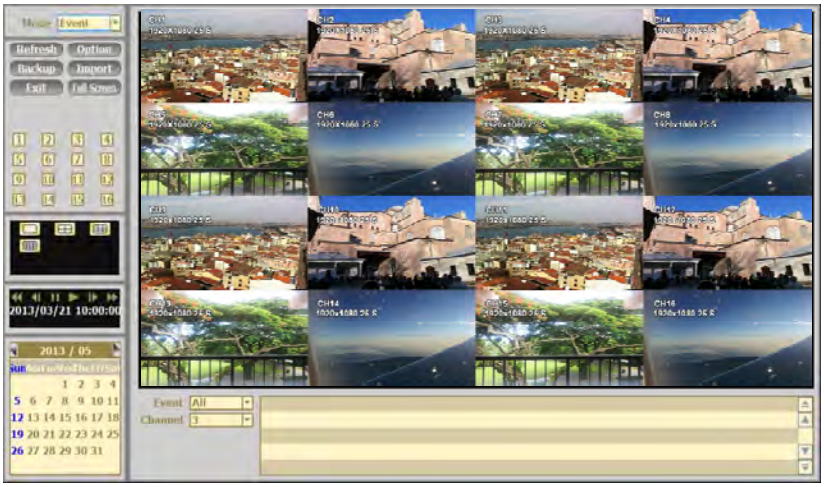
Time : Search by Month / Day / Time selection.
Event : Select from Event Log
POS : Search by POS transaction data
Thumbnail : Play the specific channel by user defined interval
Panorama : Play the specific channel continuously

3-3-1. Search Selection Type

1) Time Based search selection

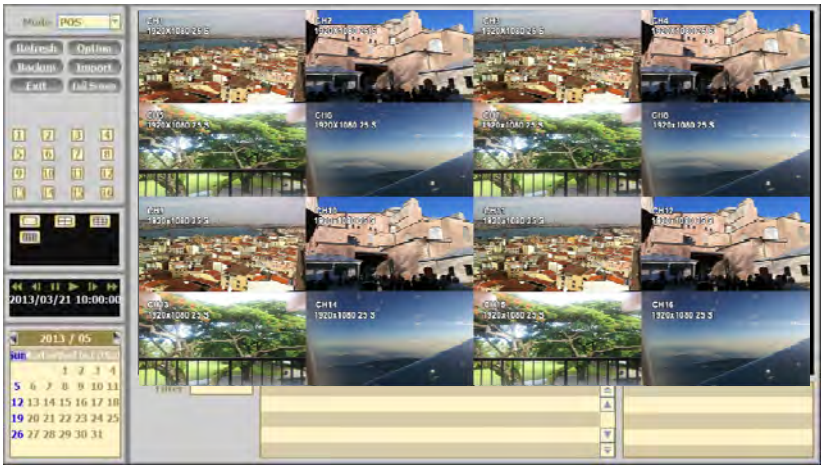
- Select the Date you wish to view by selecting a Date from Calendar
- Select time you wish to view by selecting a time from Time Line
- You may click on Refresh, Option, Backup, Import, Exit , Full Screen for additional features and options

2) Event Based Search Selection



- Select search date from calendar
- Event log will be displayed according to the chosen date
- Preview pane above the Event Log will show preview of currently selected video
- You may click on Refresh, Option, Backup, Import, Exit, Full Screen for additional features and options

3) POS Search



- Select search date from calendar
- POS transaction data will be displayed according to the chosen date
- You can search detail by filter.
- You may click on Refresh, Option, Backup, Import, Exit, Full Screen for additional features and options

4) Thumbnail Search

- Select search date from calendar
- Choose the channel and interval, then select the time from bar or typing
- The selected channel will be played individually by interval time difference
- You may click on Refresh, Option, Backup, Import, Exit, Full Screen for additional features and options

5) Panorama Search

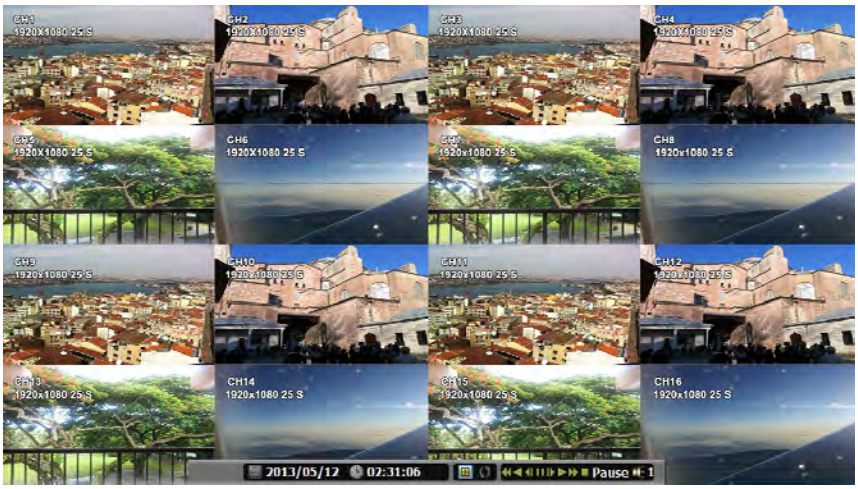
- Select search date from calendar
- Choose the channel and time from bar or typing
- The selected channel will be played continuously. If you want to play faster, use the FF button.
- You may click on Refresh, Option, Backup, Import, Exit, Full Screen for additional features and options

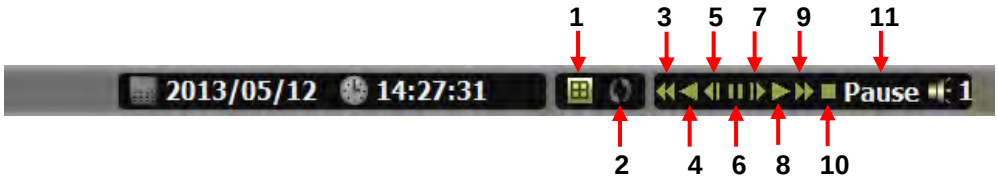
6) Search Related buttons

Refresh	Reload all data list.
Option	Search option.
Backup	Backup recorded data to external USB device.
Import	Playback recorded data from external USB device
Exit	Move to Live video mode.
Full Screen	Load playback data to full screen mode.

3-3-2. Play Mode

If you choose 'Full Screen', the full screen appear. You can control the play speed in here.





▶ **Play Screen GUI**

1. Split Screen
2. Sequence
3. FB (Fast Backward): FB×2, 4, 8, 16, 32, 64 times faster
4. Playback : Backward normal speed
5. SB (Slow Bacward):SBx1/2, SBx1/4
6. STILL (Pause) / Frame advance
7. SF (Slow Forward):SFx1/2, SFx1/4
8. Play : Forward normal speed
9. FF (Fast Forward): FF×2, 4, 8, 16, 32, 64 times faster
10. STOP : Stops playing and returns to LIVE Screen.
11. Status information

3-4. SETUP Mode

Access Setup menu from Right Clicking mouse button to Popup Menu.
Configure Display, Record, Device, Network, System which is navigated by clicking on corresponding tab menu at the top of the screen

3-4-1. Display

Configure OSD, Main Display, Color Control setting.

1) OSD

You may configure and/or view Date Format / Time Format / Language / Alpha Blending / OSD / Information Bar options

Date Format: Select from YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY
Time Format: 24H – 24hour military time
12H (AM/PM) – 24 Hour separated by AM/PM
Language : Select system language
Alpha Blending: Adjust transparency of System Menus
OSD : OSD On/Off
Information Bar: Information Menu Bar Hide/Auto hide/ Show always
Display HDD Usage : Percent/Oldest Date
Default : Factory default all configuration values
Apply : Save current page configuration

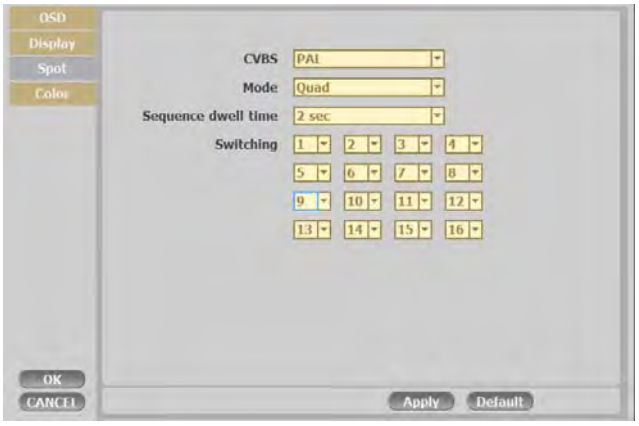
2) Display

Configure and view VGA Resolution, Sequence Dwell Time and Display control settings.

VGA resolution : You can choose the VGA Resolution from 1920X1080(60Hz), 1920X1080(50Hz), 1280X720(60Hz) and 1280X720(50Hz).
Sequence dwell time : You can adjust the dwell time upon full screen switching.
Display control : You can adjust the brightness, contrast, hue and saturation of output.

3) SPOT Control

Set the SPOT output .



You can set the SPOT output.

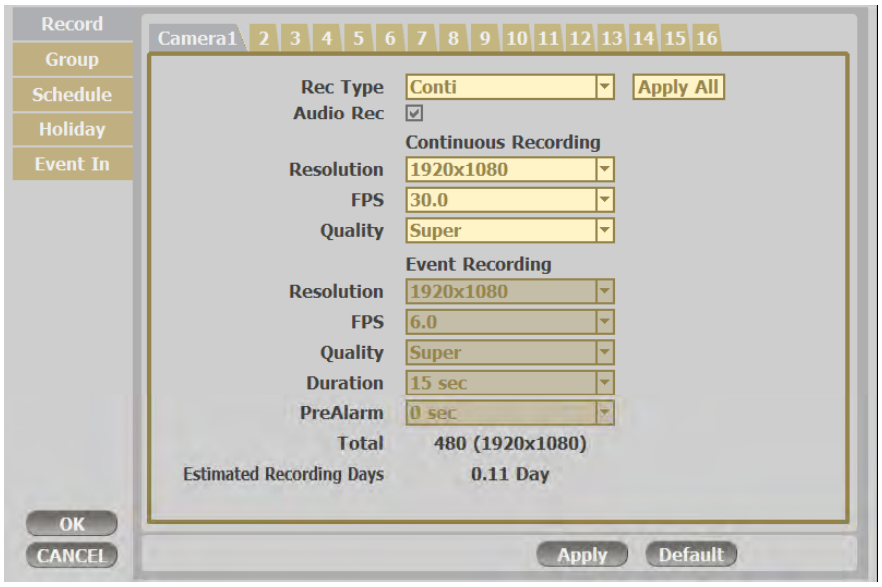
- CVBS : Choose NTSC or PAL
- Mode : Choose 'Full' or 'Quad'.
- Sequence dwell time: Adjust the switching time.
- Switching : You can program the sequence time. If you want to just see ch1, you set all box to '1'. You can make any useful sequence by this map.

3-4-2. Record

Configure and view Event In, Record, Group, Holiday settings

1) Record

With this menu, you can set the recording variables of DVR and the Scheduler.



1) Rec type: to set continuously, event, C/E(conti and event) and none(not recording).

2) Audio Rec: to select audio recording or not.

3) Conti Recording: continuous recording mode setting.

① Resolution: You can choose 1920X1080 or 960X540 if you connect 1080p or i camera. You can choose 1280X720 or 640X360 if you connect 720p camera

② FPS: Set recording frame rate. 1,2,3,4,5,6,7,8,9,10,11,12,13,15,25,30,50,60 are possible You can check the total number of frames in 'Total'. Maximum is 60frames@1920X1080

③ Quality: Set picture quality. As quality gets higher, screen quality gets better but saving period gets shorter because file size gets bigger. There are 4 steps quality such as Super, High, Medium and Low

To save the setting, choose 'Apply' after setting.

4) Event Recording

This is a window setting Event Record Mode. Setting method is same as Conti Recording method. Conti Recording and Event Recording can be operated simultaneously.

So during no event input, DVR records by Conti recording settings. However if there is an event , it starts recording by Event Recording settings during Time(sec). This function is very useful when you want to operate with the mixture mode.

- Duration(sec): to set post event recording time. You can choose between 1~59 seconds.
- Pre alarm(sec): to set pre event recording time. You can choose 1~4 seconds.

5) Estimated Recording Days : This is an automatic calculator of the recoding days.

* Event recording has priority in recording. In C/E recording, the recording will follow conti recording setup in normal condition while it would follow event recording setup in event generation.

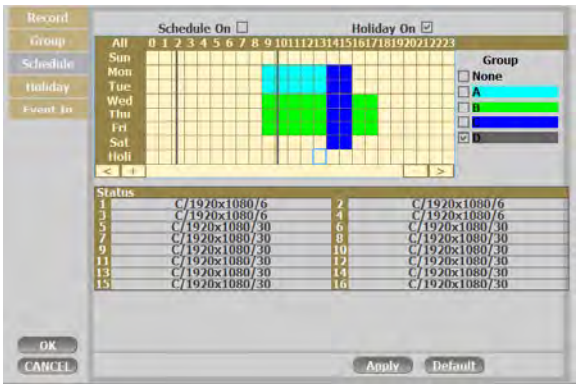
* For convenience, you can use the 'Apply All' menu to change with the same preference. You don't have to setup each channel if you using the 'Apply All' function.

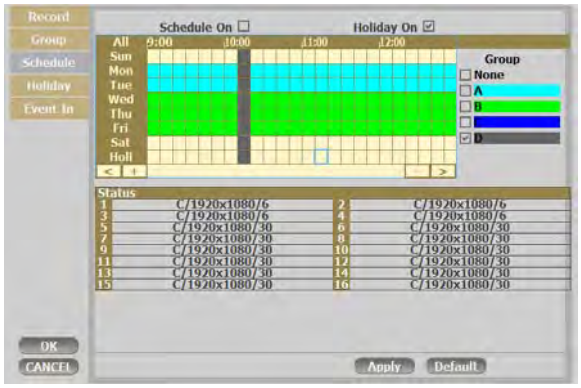
[When Scheduler On]

If you select Schedule , following [Schedule Recording] setting window appears. If you choose Schedule On, the weekly scheduler is activated. Since you can set recording weekly, you can reduce recording of unnecessary time period. In Scheduler window, days and channels are displayed, and recording information for each channel is displayed at bottom of window.

<How to set the weekly scheduler>

1. Choose 'Scheduler' to 'On'.
2. Choose group and drag to wanted time.
3. Press the time bar if you want to set the detailed time.
4. Press 'Enter' button to change the group of the selected area.
5. If you activate 'Holiday' scheduler, choose 'holiday'.





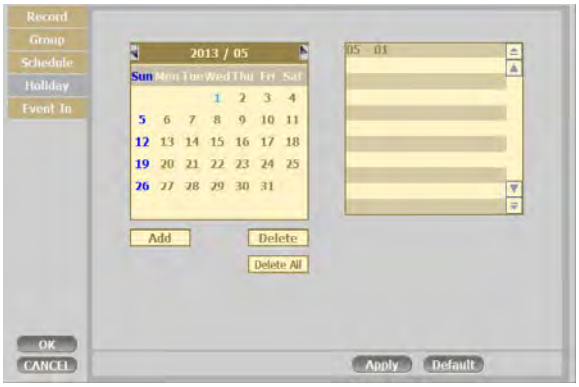
2) Group

With this menu, you can set the group using the scheduler. If you choose 'Group' tab, you can see the similar screen with 'Record'. The setting is similar.

*In recording, Schedule recording setting is most preferred. So if you activate the weekly scheduler, you cannot record manually.

3) Holiday

With this menu, you can add the holidays. Use the 'Add' button for adding the holiday and use the 'Delete' or 'Delete All' buttons for removing the existing holidays.



4) Event In

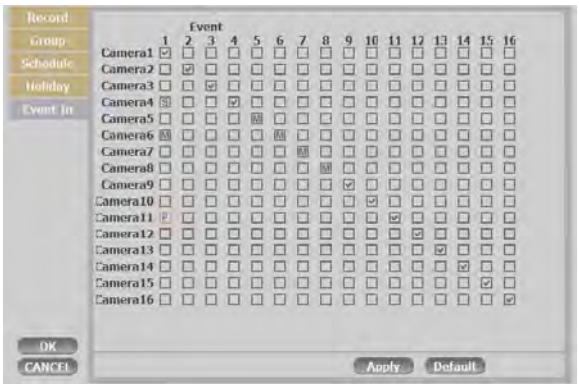
With this menu, you can set sensor input, motion detection setup. You can also set each channel individually. Each channel may be configured to M (Motion) / S (Sensor) / V (Both)

* Summary regarding as Event Recording

	Event Input	Motion Detection	Sensor Setting
MD recording	MD	ON	OFF
Sensor detection and recording	Sensor	OFF	ON
MD,Sensor detection and Recording	MD/Sensor	ON	ON
MD,Sensor Detection and non-recording	None	ON	ON

*In REC Menu, MD recording, Sensor detection recording, MD, Sensor detection recording and no recording are determined according to Event Input.

*Although you set Motion Detection and Sensor Setting to On in Event menu, if Event Input in Rec Menu is set to None, it only detects and does not record.



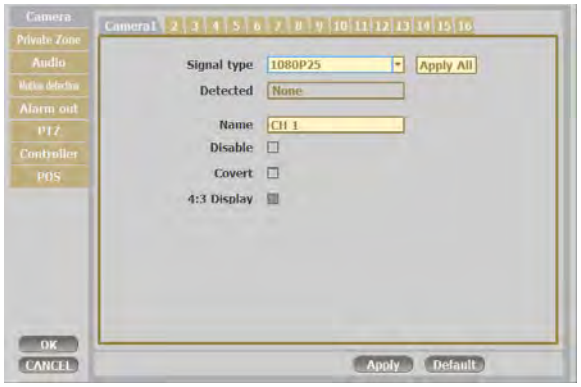
☑	All event
S	Sensor only
M	Motion only
P	POS only

3-4-3. Device

Configure and view Camera, Private Zone, Audio, Motion Detection, Alarm Out, PTZ settings and Controller.

1) Camera

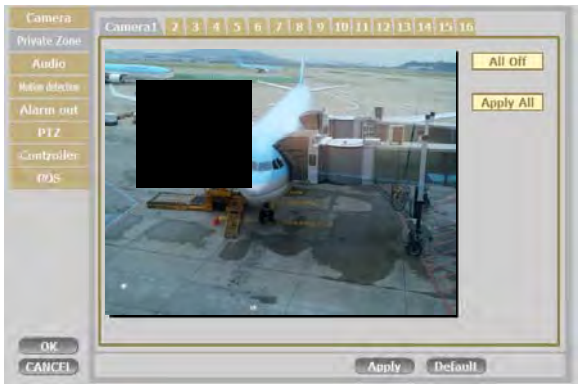
You may configure and/or view camera video type and general camera configuration.



•Signal Type : You can choose between Auto/1080p60/1080p50/1080p30/1080p25/ 1080i60/1080i50/720p60 /720p50/720p30/720p25
•Name: You can set the camera name.
•Disable : Disable current camera. It is useful when the signal is bad.
•Covert : Hide current camera from Live view but Record for future searching option

2) Private Zone

If you want to hide some part of the picture for privacy, you can choose the area by dragging the mouse. The selected area will be changed to mosaic screen.



① All Off : .No mosaic.
② Apply all : apply the setting to whole channel

3) Audio

•Audio Out: Select which channel will be heard during Live View.

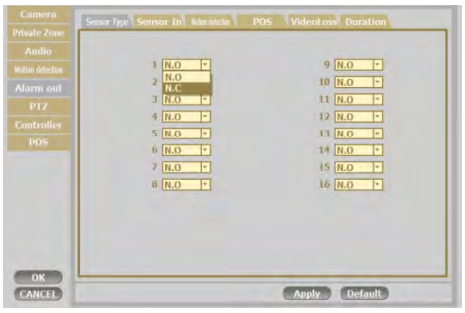
4) Motion Detection

Change settings for Motion Grid selection and Sensitivity Level. You can set multiple area.

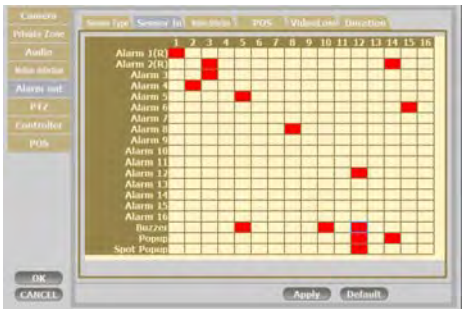
① Sensitivity.: 3 steps
② All On/Off : This will activate or deactivate the motion detection of the all area.
③ Apply all : apply the setting to whole channel

5) Alarm Out

There are 4 types trigger such as sensor input, motion detection, POS and video loss. This setting is related that which trigger will be activate the action such as Relay, Popup, and Buzzer Alarm Out. Each type can have separate Duration value and also linked to selected camera.

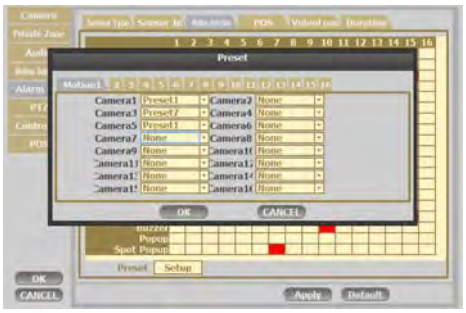


Sensor Type: Selectable option is N.O. (Normally Open) / N.C. (Normally Close)

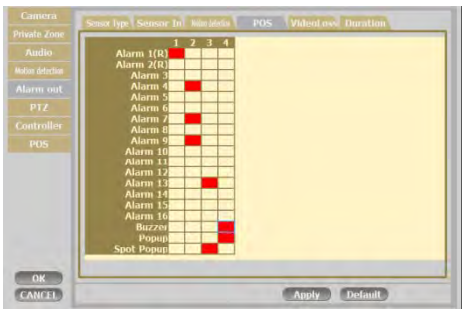


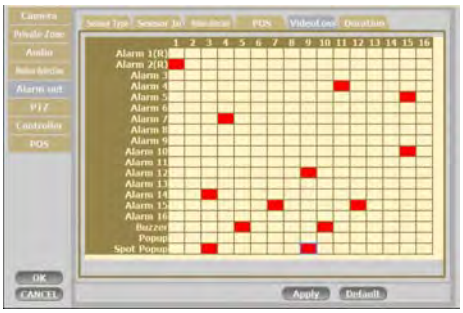
You can choose the action after sensor in between relay, buzzer sound, pop up and spot pop up . Also you can choose more than one action.

You can choose the action after motion detection between relay, buzzer sound, pop up and spot pop up . Also you can choose more than one action. Furthermore you can set the preset position number by motion detection. If you push the 'setup' you can see the preset screen.



You can assign the preset position individually by specific motion.





You can choose the action after POS transaction or video loss between relay, buzzer sound, pop up and spot pop up . Also you can choose more than one action.

Duration Time from 5 seconds to 60 seconds

6) PTZ

Configure Pan/Tilt/Zoom camera for control via DVR System and Remote client

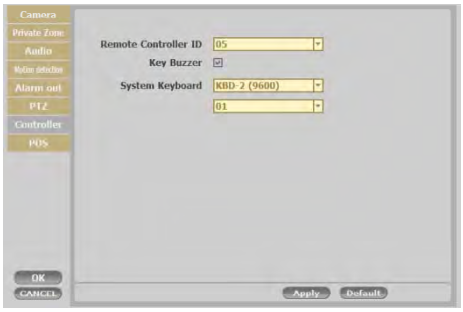
Driver: Choose Driver to be suitable for PAN/TILT Camera manufacturer.
You have to set Comport value according to the connected camera. There are more kinds of camera which can be supported. Please contact the tech support to want to know the other cameras.

	Baudrate
PELCO D type	9600~2400
PELCO P type	2400
PANASONIC	2400~19200
ORIENTAL	2400(Fixed)
LPT-A100L	9600(Fixed)
LG-SD110	2400~19200

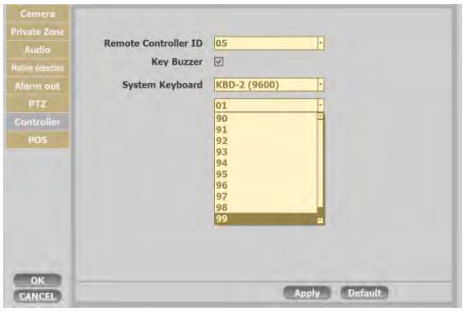
* For connection of PAN/TILT Camera Receiver part, refer to user's manual of the related PAN/TILT Camera.

7) Controller

*Remote controller setup
This sets the ID of remote control. If you have many DVRs in the same place, you can control separately the DVR by different remote control ID.
Use the ID setup and number key to set the ID of remote control on the remote controller. You may check the ID by pressing the remote control key. The ID should be the same between the DVR and remote control.
And you can turn it on/off the key sound.



*Remote controller setup
You can use the System Keyboard with Joystick and Jog Shuttle, KBD-2 to control the DVR and Speed dome camera.
Please choose the address first after choosing KBD-2 keyboard.

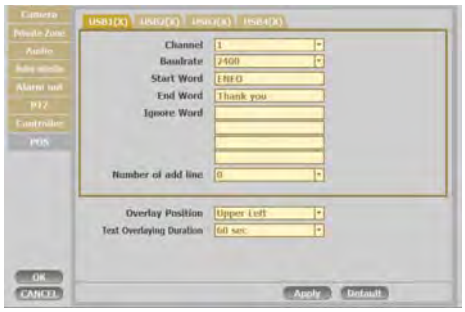


Next table is the keyboard mapping table with DVR.

Keyboard		DVR
MENU	MACRO MENU	Menu/Exit
DISPLAY	⊞	Display
SEQUENCE	SEQ	Switch
FREEZE	FRE	Freeze
STOP	■/✋	Stop
SEARCH	🔍	Search
PLAY/PAUSE	▶/❚❚	Play
FF	▶▶	FF
REW	◀◀	FB
PANIC REC.	●/👁	PANIC
JOG, SHUTTLE		JOG, Shuttle

8) POS

This sets the POS interface(text inserter) with the DVR and cash register.



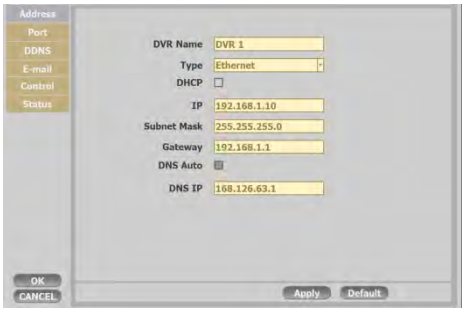
- Baudrate : Select the baudrate of POS
- Start Word : Type the start word of transaction
- End Word : Type the end word of transaction. Text will be embedded into the picture between start word and end word.
- Ignore word : Type the word which you want ignore during text insertion.
- Number of add line : This will determine the adding line after end word.
- Overlay Position : This will determine the text position.
- Text Overlaying duration : This will determine how long display the text up to 100 seconds.

3-4-4. NETWORK

Configure and view Address, Port, DDNS, E-mail, Control and Status settings

1) Address

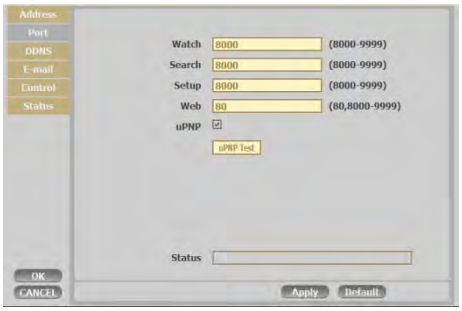
Configure Network information for Remote client connection



• DVR Name : Type the URL of DVR using virtual keyboard.
• Type : It can be supported only Ethernet
• DHCP (Dynamic Host Configuration Protocol)
Set whether you want to use DHCP or not (On/Off)
If you connect LAN after setting it to On, IP is allocated automatically. If you set it to Off, you have to input IP. DHCP is a protocol that allows managers to manage and allocate IP address centrally.

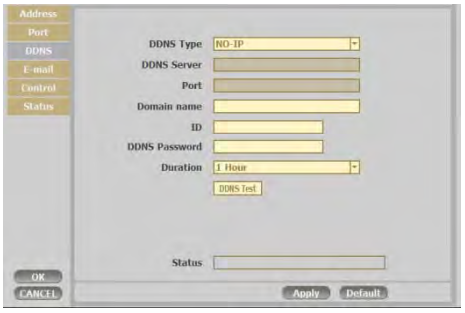
2) Port

There are 4 kinds of ports for the case such as watch, search, setup and web. You can individually set the port number of the DVR. The default is 8000. You can choose from 8000 to 9999.
If you activate 'uPNP (Universal plug and play)' box, DVR connects the router automatically with these port number. You don't have to setup the router.



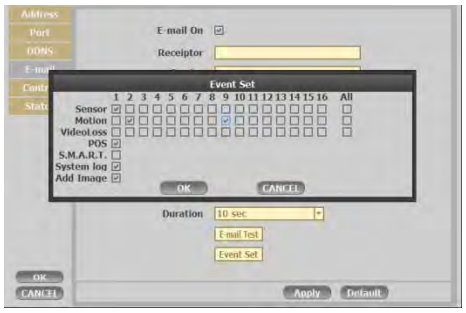
3) DDNS

This is the function to automatically change the IP of DVR to URL. This product supports the automatic DDNS service using manufacture's internal server. Also you can choose Dyndns.



4) E-mail

You can send the event with snapshot by email. Fill all the information correctly and push the 'Email Test'. Also you can select each event individually by 'Event Set'.



5) Control

You can individually adjust the resolution and frame rates of video transmission within 15 frames based on 1920X1080. Or you can send 60 frames based on 1920X1080 if you activate 'Use Record Stream' and set the record to 60 frames total. However, you need enough bandwidth to use this function.

① Resolution : You can choose CIF or D1
② FPS: You can adjust the frame rate.
③ Quality: Set picture quality

6) Status

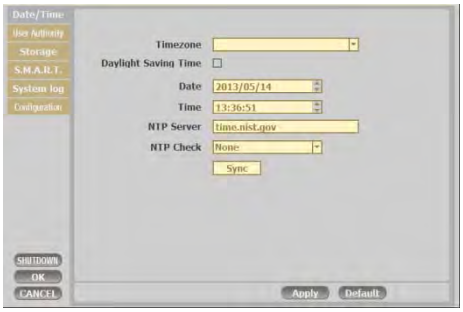
This shows the information how many connections and what is the action of each connection.

① Connected IP : This displays all the connected IP.
② Watch User: This displays how many connection for live viewing.
③ Search User: This displays how many connection for playback.
④ Setup User: This displays how many connection for DVR setting.

3-4-5. SYSTEM

Configure and view system Date/Time, User Authority, Storage, System Log and Configuration settings

1) Date/Time

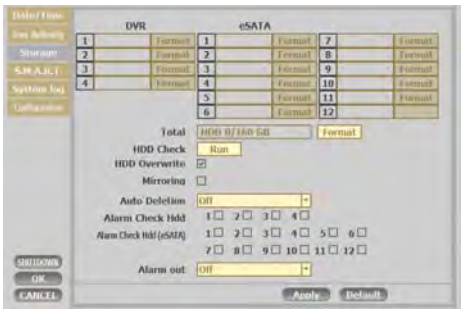


•Time Zone: Choose the time zone of your site. If you using the NTP function, it must be set correctly to your zone.
•Daylight Saving Time: It enables to adapt the day light saving time automatically.
• Date/Time: This sets product time. Input time by pressing number buttons after moving cursor with direction buttons. Be careful to move to backward. The overlapped data will be deleted with warning message.
• NTP (Network Time Protocol) Server: This function is to change the time of DVR automatically via network. Press the 'Enter' button and using the virtual keyboard, type the address of NTP server.

2) User Authority

This sets User authority individually. You can give to each users the authorities such as setup, search, backup, PTZ, network and camera control.

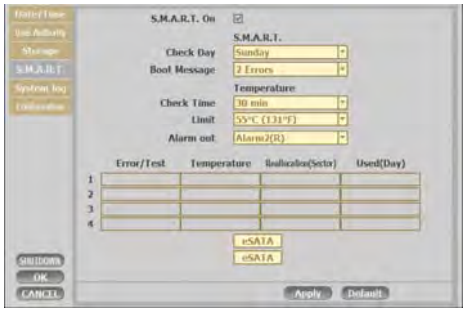
3) Storage



•Display the information and usage of the hard disk drives. If you press the 'Format' button on each HDD, only that HDD will be formatted.
•eSATA(5008R, 5016 only) : You can install the eSATA up to 12 bays.
•Total : Display all the HDD usage being used for the product. If you press the 'Enter' button on here, all the hard disk drives will be formatted.
• HDD Overwrite : Determine whether you want to continue recording if there is no spare saving space at hard disk drives.
•Mirroring : If you install two hard disk drives, you can set the second drive as a backup drive by mirroring. The mirrored disk size will be the same or greater than master HDD.
• Auto Deletion : You can select the holding period of the data. If you choose 'OFF', the DVR keep the maximum data regarding the HDD capacity.
•Alarm Check HDD : There is an alarm if there is no HDD or no format. It is useful to check the HDD absence.

4) S.M.A.R.T (Self-Monitoring Analysis and Reporting Technology)

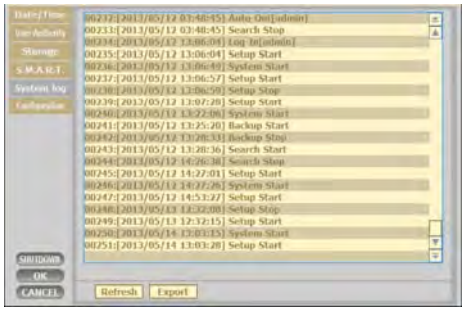
This function lets you probe the hard disk drives and investigate the status of the drivers automatically.



•Check day : Determine the date to perform the SMART.
•Boot message : the number of message of showing the errors
•Check Time : Temperature check period
•Limit : The upper tolerance of the hard disk drive temperature
•Alarm out : You can choose Buzzer or Relay

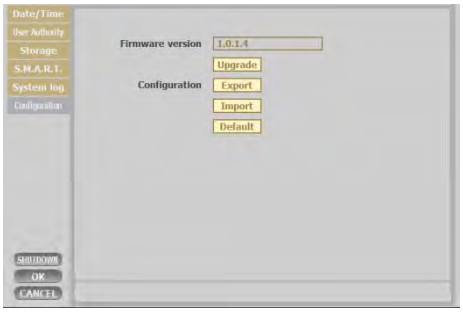
5) System Log

You may view all System administration log from Setup → System → System Log. Also you can export the system log and easily send it to technical support for trouble shooting.



6) Configuration

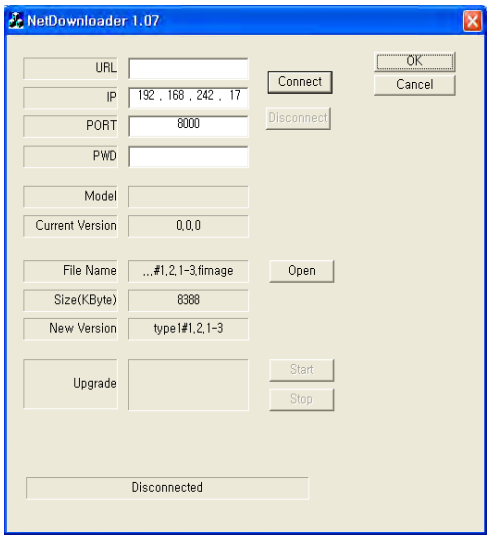
Shown at the following screen, from Setup → System → Firmware, you may view the current firmware version as well as Upgrade the firmware and additionally, Export, Import, and Default DVR Configuration.



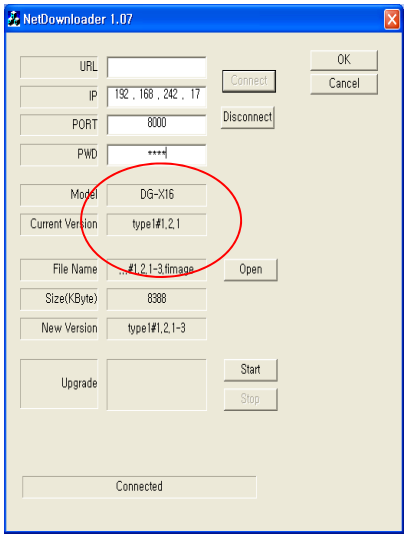
3-5. Firmware Upgrade

1) Upgrade by Network

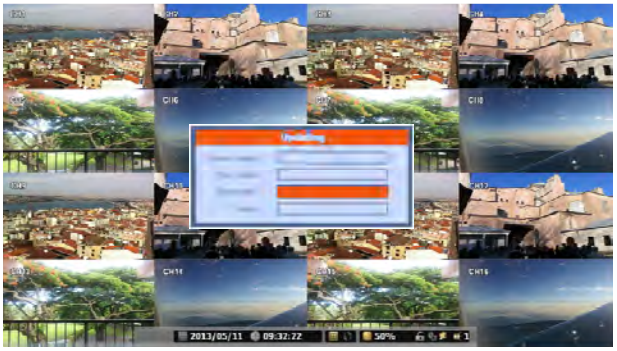
After installing the client software, you can find the 'NetDownloader Program' in the window programs (Start -> programs -> DVR Client -> NetDownLoader) . Please execute this 'Net Downloader Program' to upgrade the firmware of the DVR.



After typing the IP and password of the DVR, click the 'Connect' button. You can check the model name and the current version. If you can't see the model name and current version, you should check the network and try again.



When you connect the DVR, click the ‘open’ button on the ‘NetDownloader Program ’and select the update file and then press the ‘start’ button. You can see the below download window on the DVR screen.



☞ WARNING!!!

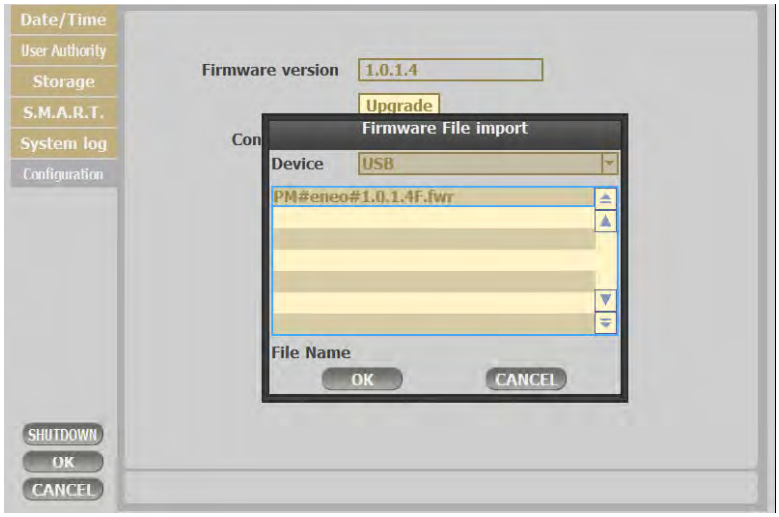
Do not turn off the power during download procedure. If you power off manually, all memory will be deleted !

※ After upgrading, DVR will reboot automatically. Before rebooting, do not operate manually !

2) Upgrade by USB

If you want to upgrade by USB memory,

1. Download the latest firmware to USB memory root directory.
2. Put this memory to USB slot.
3. Choose 'Upgrade' button in MENU->SYSTEM->Configuration.
4. You can see the below screen will appear.
5. Double click the desired file with mouse, and it will automatically proceed.



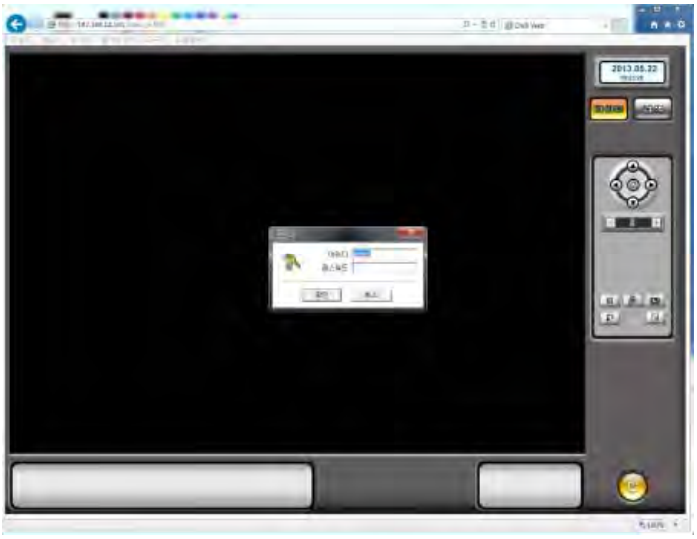
Trouble Shooting

Symptom	Checkpoint	Countermeasure
● Can't turn on power	● Is DVR connected to power supply cable?	● Connect power cable
● There is no image on monitor	● Are DVR and monitor turned on? ● Are cables of DVR connected?.	● Turn on power. ● Connect DVR cable.
● Only INFO OSD is on monitor and no image	● Is camera turned on? ● Are cables of DVR and monitor connected?	● Turn on camera. ● Connect cables of DVR and monitor.
● There is Video Loss message.	● Is NTSC/PAL setting normal? ● Is connection between DVR and camera normal?	● Check whether NTSC/PAL setting is SETUP properly ● Check whether DVR and camera are connected properly
● Can't search with Client Program.	● Isn't another user using same IP?	● Use it after another use finishes using it. If another user is searching DVR remotely with same IP, you can not search.
●Motion Detection doesn't work well	● Isn't it too bright or too dark? ● Isn't camera installed too far away? .	● Increase Motion Detection sensitivity. ● Install camera closer.
● There are differences between Live screen and actual condition during remote monitoring		● Since it buffers Live images, there might be changes with actual condition. (1~2 sec)
● Live doesn't work well in remote monitoring	● Is it set to True Color? ● Are PC specifications and VGA Card specifications are appropriate?	● Refer to recommended Client PC specifications in 4-1 Installing Client Program?

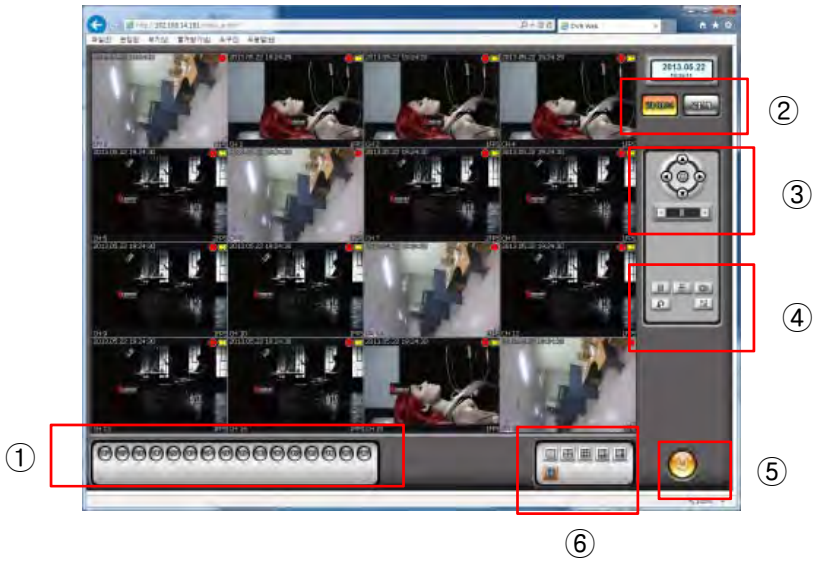
Appendix A Connecting using Web browser

1. Type the URL or DDNS name such as http:// xxx.xxx.xxx.xxx . You can see the below Active-X setup screen.

2. After setup active-x, login window appears.



3.This is the live viewing screen. Yon can choose single channel by clicking or division button. If PTZ camera is connected to the DVR, you can control the PTZ also.



① Channel selection

② Live/ playback selection

③ PTZ control

④ Freeze

Print picture. For printing, freeze first.

Save the picture

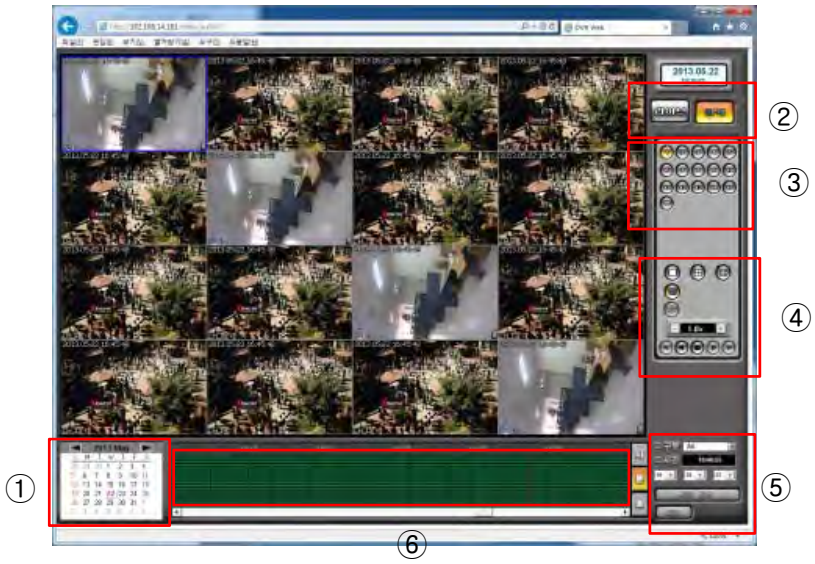
Channel switching

Full screen. If you want to come back, click mouse right button.

⑤ Turn off all the screen

⑥ Split mode selection

3.This is the search screen.



① Calendar

② Live/ playback selection

③ Channel selection

④ Split mode selection

Print picture.

Playback speed

Playback control

⑤ Time search

⑥ Graphic recording data

Appendix B Catcheye for Android mobile

The Catch Eye allows for you to monitor DVRs.
It now supports Live mode. Playback mode will be added soon.
It is easy and convenient to use.

The functions of Catch Eye:

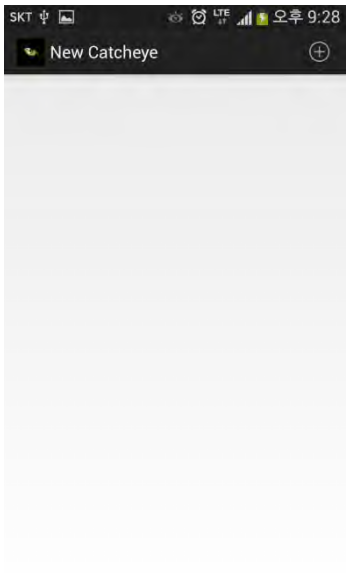
- Live View
- 1/4/16 division
- Channel switching
- Server management
- PTZ control
- Digital zooming
- Snapshot
- Search

The functions operated by Touch:

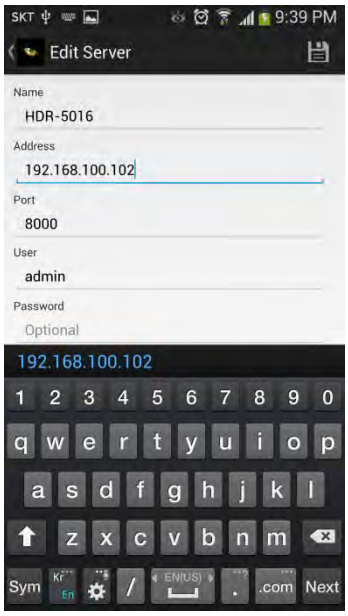
- Single touch : switch channel, Pan/Tilt.
- Multi touch : Digital-Zoom, PTZ Zoom-In/Out

1. Starting

When you launch Catch Eye for the first time, You need to register new DVR servers in the screenshot (as) below. Tap the menu button and select the ⊕ to continue.



2. Server Management



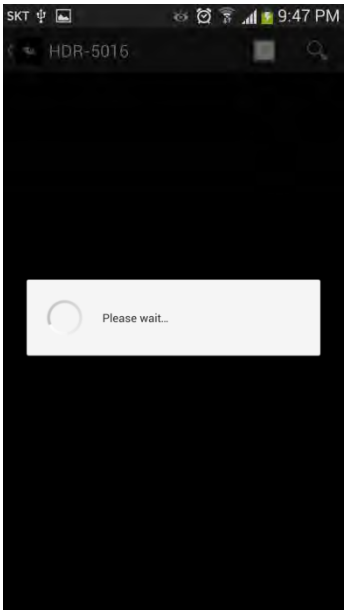
Enter the appropriate data of your DVR server.

- Server Name : Name that you want to associate with the DVR server.
- IP address : IP address or a DDNS name.
- Server Port : Port number(watch port in DVR setup).
- User Name : Username(default is "admin").
- Password : User password.

When you finish, tap the button on the right upper side.

Tap the DVR information for a few second in order to modify the sever setting.

3. Live Viewing



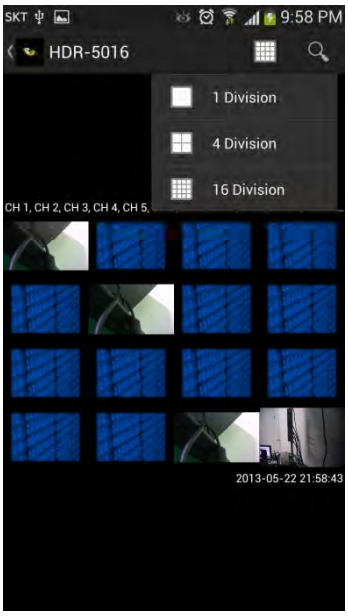
Tap the DVR server information. The app will show “Please wait” as below.

** Wait Until it receives DVR channel data, it will take a few seconds depending on the network environment. 3G will take a longer time than Wi-Fi.

The next screen shows the first channel on DVR live view.

4. Multi Channel Viewing

If you tap buttons, sliding view will appear in live view so that you can change the channel or division that you want. Max channel depends on server's max channel, and division type is 1,4 and 16 division mode.(16 division mode works on products support over 16channels.



5. Image Saving

If you push the left button of phone, ‘Save Image’ will be appeared on bottom screen. If you save a snapshot, you can find in the phone’s Gallery menu.

6. PTZ Control Mode

If the PTZ camera is set on the DVR , PTZ button will appear automatically and allow you to control PTZ camera

Every PTZ function is controlled by touch. You can also control zoom-in, zoom-out, focus-in, focus-out functions by tapping menu buttons.

7. Digital-Zoom Mode

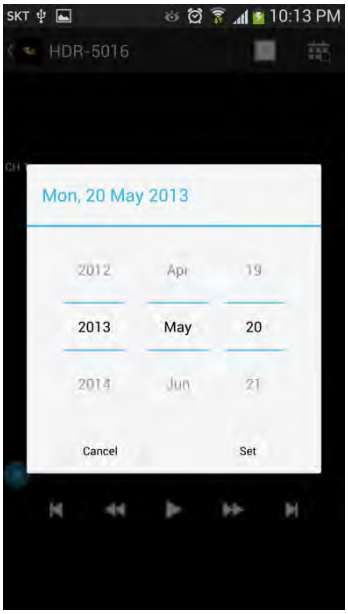
Digital zoom in and zoom out will be done by two finger touch and dragging like a smart phone zooming.

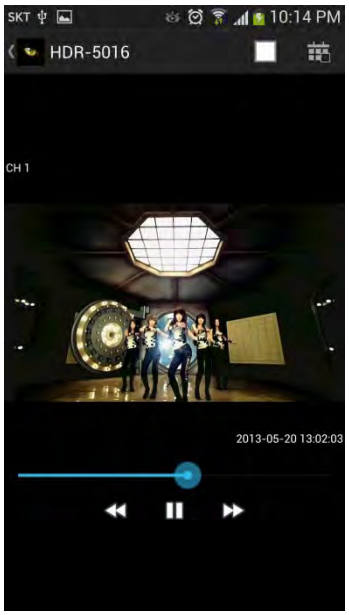
8. Search

If you tap the button, you can search the recorded file.

- Select the wanted date.
- Drag the blue time bar as you wanted time

Also you can see the multi channel playback by choosing the ‘Division’ selection..





Appendix C Catcheye for iPhone

The Catch Eye allows for you to monitor DVRs.
It now supports Live mode. Playback mode will be added soon.
It is easy and convenient to use.

The functions of Catch Eye:

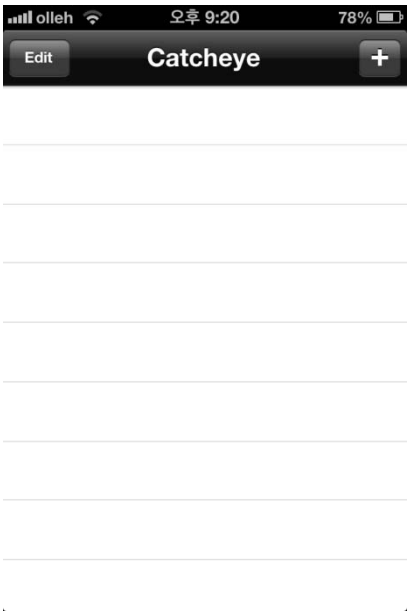
- Live View
- 1/4/16 division
- Channel switching
- Server management
- PTZ control
- Digital zooming
- Snapshot
- Search

The functions operated by Touch:

- Single touch : switch channel, Pan/Tilt.
- Multi touch : Digital-Zoom, PTZ Zoom-In/Out

1. Starting

When you launch the Catch Eye for the first time, You needs to register new DVR servers in the screenshot as below. Tap the + button to continue.



2. Server Management

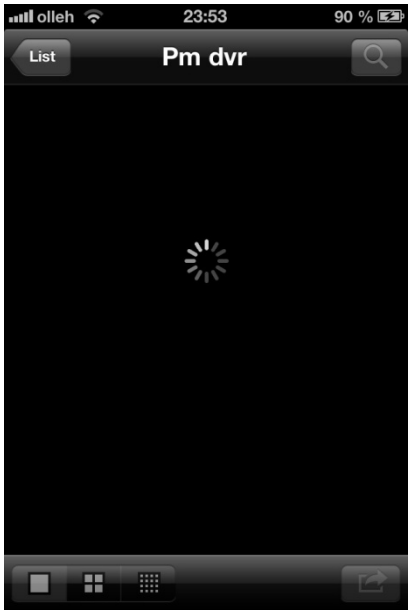
Enter the appropriate data of your DVR server.

- Title : Name that you want to associate with the DVR server.
- IP address : IP address or a DDNS name.
- Port : Port number(watch port in DVR setup).
- Username : Username(default is "admin").
- Password : User password.
- Server Type : Embedded DVR, HD DVR, PC DVR

When you finish, tap the "Save" button.

The "Edit“ button modifies the information of the selected DVR Server.

3. Live Viewing



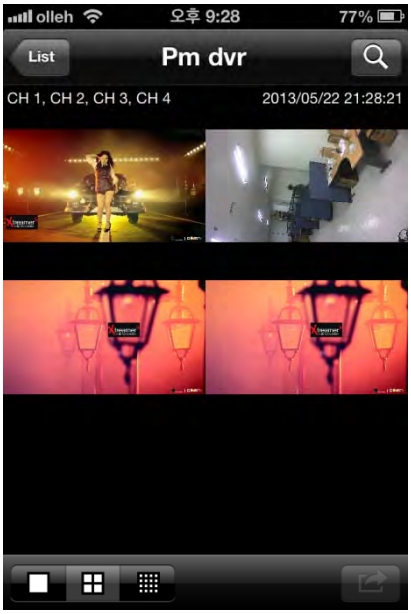
Go ahead and tap the DVR server item in Catcheye screen when you register DVR server. The app will show “loading circle icon” as below.

** Until it received DVR channel data, it takes a few seconds(it depends on network environment. 3G will be longer than Wi-Fi)

The next screen shows DVR live view for first channel.

4. Multi Channel Viewing

If you tap button, you can choose 4, 8 and 16ch viewing in live view and you can change channel and division mode. Max channel depends on server's max channel, and division type is 1 channel, 4 channel and 16 channel mode.



5. Image Saving

You can save the snapshot by tapping button. If you capture image by tapping "Save Image" button, you can find image file in iPhone's photo album menu.

6. PTZ Control Mode

If the PTZ camera is set on the DVR , PTZ button will appear automatically and allow you to control PTZ camera

Every PTZ function is controlled by touch. You can also control zoom-in, zoom-out, focus-in, focus-out functions by tapping menu buttons.

7. Digital-Zoom Mode

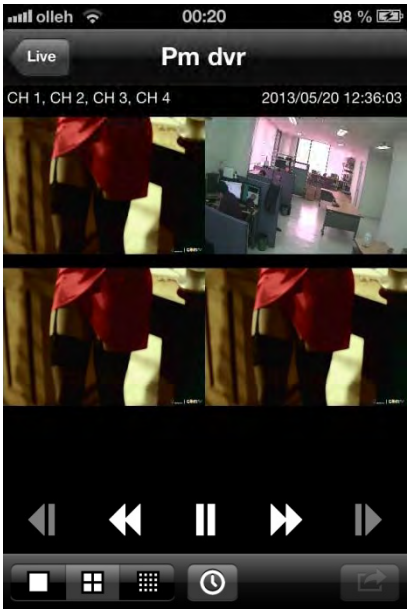
Digital zoom in and zoom out will be done by two finger touch and dragging like a smart phone zooming.

8. Search

If you tap the button, you can search the recorded file.

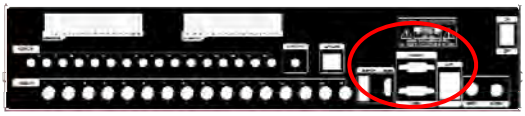
- Select the wanted date from the calendar.
- Drag the blue time bar as you wanted time

Also you can see the multi channel playback by choosing the 'Division' selection..

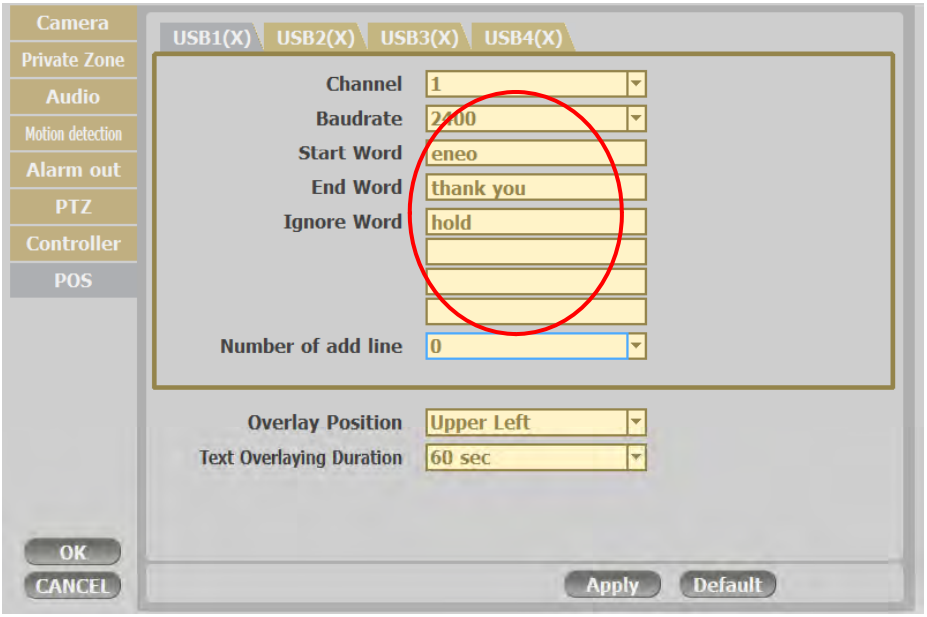


Appendix D How to Connect POS

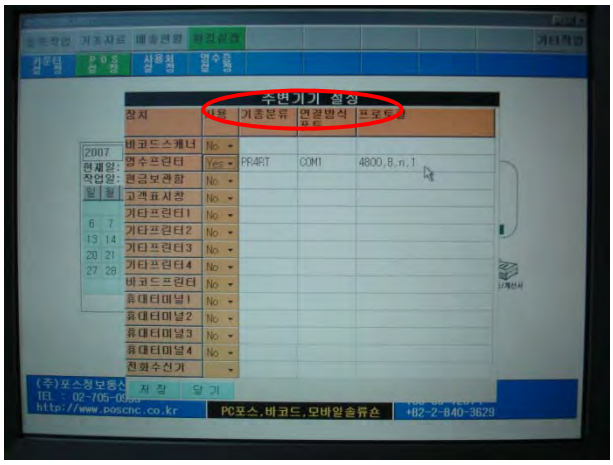
1. Connect the USB between POS and DVR.



2. Set the preference of the POS on the DVR. If your POS is in the device list in the text in setup of DVR, you just simply choose that device. If not, you should choose 'USER' and manually set the values from the client software



3. To set manually, at first you should know the setting values of the POS. You can get the information from the POS setting screen.



4. If your setting is correct, you can see the below DVR screen on transaction. (This is the popup screen. You can set popup in the 'Event In' setup.)